

USSR

Microelectronics

UDC 621.59:621.315

TKACHUK, B.V., LAURS, YE.P., MIKHAL'CHENKO, V.I., PEROVA, L.V.

"Thin Polysilicone Films--New Insulating Material For Cryogenic Electronics"

Dielektriki. Mezhd. nauch. sb. (Dielectrics. Interdepartmental Scientific Collection), 1972, Issue 2, pp 65-68 (from RZh:Elektronika i yeye primeneniye, No 8, August 1972, Abstract No 8A70)

Translation: Polysilicone films with a volume resistivity of $4 \cdot (10^{14} - 10^{15})$ ohm. cm, a breakdown strength of $2 \cdot 10^6$ V/cm, a dielectric constant of 2.7--4.5, and a loss angle of $(2.5 - 4.5) \cdot 10^{-3}$ are prepared by polymerization of organosilicon compounds in a glow-discharge plasma. The effects were studied of the conditions of preparation and the changes of temperature from room temperature to 4.2° K on the dielectric properties of polysilicone films. Conclusions are drawn concerning their suitability for use as insulating layers and protective coatings during production of large integrated circuit. 2 ill, 7 ref. Summary

1/1

USSR

UDC 539.23:678.745:537.226

AYVAZOV, V. YA., KOBKA, V. G., PEROVA, L. V.

"Obtaining Thin Polymer Films and Studying their Dielectric Properties"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No 5, 1971, pp 39-42

Abstract: A study was made of the process of obtaining polymer films on an insulated substrate placed in the interelectrode space, the electrophysical properties of these films and the parameters of thin-film capacitors based on them. The procedure for obtaining the thin polymer films in an AC glow discharge is described. Data are presented showing the effect of the vapor pressure of the initial monomer (hexamethyldisiloxane) and the discharge current density on the stability of the dielectric properties of the films. All the basic electric parameters of thin-film capacitors with a polymer dielectric measured in a broad temperature and frequency range are presented. A table is given with the dielectric constant ϵ , $\tan \delta$ at a frequency of 1 kilohertz, the leakage resistance for a DC voltage of 10 volts, the breakdown voltage V for capacitors with an electrode area of 0.1 cm^2 . These parameters are sufficiently high for the thin-film capacitors with a polymer dielectric to operate under the most rigid temperature conditions. The described polymer films can be used successfully in microelectronics to obtain high-frequency film capacitors and insulating layers.

1/1

Organometallic Compounds

USSR

UDC 678.84;539.531:621.3.011.5

TKACHUK, B. V., PEROVA, L. V., and KOLOTYRKIN, V. M., Scientific Research Physicochemical Institute imeni L. Ya. Karpov

"Dielectric Properties of Organosilicon Films and the Effect of γ -Radiation on Their Structures"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 13, No 4, Apr 71, pp 828-832

Abstract: The dependence of dielectric properties of thin polysiloxane films on the conditions of their polymerization was studied. It was shown that the dielectric constant ϵ and the tangens of dielectric loss angle $\log \sigma$ are independent of the polymerization period; an increase in the density of the discharge current leads to an increased dielectric permeability. It was noted that at low temperatures the methylsiloxane polymer films exhibit a maximum relaxation value of $\tan \sigma$. If the zone discharge is carried out in an argon atmosphere, the relaxation maximum shifts to higher temperatures. The effect of γ -radiation on the structure of thin organosilicon polymer films was studied by IR-spectroscopy; the films were prepared from hexamethyldisiloxane and ethyl(vinyl, ethynyl)silanes with a general formula $(C_2H_5)_3SiR$, where $R = CH_2CH_3$, $CH=CH_2$, $C\equiv CH$. It was shown that polymer films γ -irradiated

1/2

USSR

TKACHUK, B. V., et al., Vysokomolekularnyye Soyedineniya, Vol 13, No 4, Apr 71, pp 828-832

with doses up to 250 Mrad underwent no structural changes. Doses in the range 250-400 Mrad caused a relative decrease in the number of methyl groups and an appearance of oxygenated groups such as CO and OH; the macromolecules became more crosslinked.

2/2

- 10 -

USSR

UDC 621.793.12

AYVAZOV, V. Ya., KOBKA, V. G., and PEROVA, L. V.

"Production of Thin Polymer Films and Study of Their Dielectric Properties"

Poluprovodn. tekhn. i mikroelektronika. Resp. mezhved. sb. (Semiconductor
Techniques and Microelectronics. Republic Interdepartmental Collection),
1971, Issue 5, pp 39-42 (from RZh-Elektronika i yeye primeneniye, No 9,
September 1971, Abstract No 9A198)

Translation: A method is described for producing thin polymer films in an a-c glow discharge. The effect is studied of the pressure of vapors of an initial monomer (hexamethyldisiloksan) and the density of the current discharge on the stability of the dielectric properties of the film. All the basic electrical parameters are provided for thin film capacitors with a polymer dielectric measured in a wide range of temperatures and frequencies. 5 ref. Summary.

1/1

- 110 -

Acc. Nr:

AP0036815

Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i
Immunobiologii, 1970, Nr 1, pp 47-53

THE EFFECT OF DNA INHIBITORS ON THE TRANSFER
OF COLICINOGENIC FACTOR I IN SALMONELLA TYPHIMURIUM

V. G. Likhoded, A. Z. Smolenskaya, T. V. Perova, N. V. Balanin

5-fluorouracil, methothrexate, mitomycin C and nalidixic acid proved to inhibit the transfer of colicinogenic factor I during conjugation in *S. typhimurium*. It was shown that nalidixic acid did not influence the formation of effective contacts and did not kill the auxotrophic bacteria in the synthetic medium, but sharply reduced the colicinogenic transfer. However, the transfer of colicinogenic factor in some of the cells did not depend on DNA synthesis and failed to be depressed by nalidixic acid. It is suggested that the transfer of colicinogenic factor I during conjugation began after completion of its replication.

D. n.

6

CHEMICAL INDUSTRY

SO: SPKS 58722

12 APRIL 1973

DEVELOPMENTS IN CHEMICAL INDUSTRY ABROAD

UDC 66(10.1)

[Article by A. P. Kholobay, Ye. A. Petrov, and M. B. Novikikhina; Moscow, Khimicheskoye Promyshlennost, Russian, No. 2, February 1973, pp 67-70]

Production of Ethanol

One industrial method of producing ethanol is the direct hydration of ethylene in the presence of various acids (H_2SO_4 , H_3PO_4). According to patent data [1, 2], ethylene is passed through 63-72 percent sulfuric acid at a temperature of 140-160°C and a pressure of 25-31 atm. The increased yields of alcohol (up to 96 percent) and the formation of small quantities of by-products are advantages of this method over other methods of synthesizing ethanol that are widely used in industry (the oxidation of hydrocarbons and the Fischer-Tropsch process). The shortcomings of the sulfuric acid method are air pollution (hundreds of tons of waste sulfuric acid a day [3]) and significant corrosion of equipment.

Catalysts based on phosphoric acid are widely used in the hydration of ethylene in the gas phase [4], but a trend toward the use of new types of heterogeneous catalysts in this reaction can now be observed. Recently such heterogeneous acidic catalysts as $Al_2O_3-SiO_2$, $Al_2O_3-P_2O_5$, and W_2O_9 have been proposed and studied [5].

At the Institute of Industrial and Applied Chemistry at Pisa University (in Italy) a study has been made of the hydration of ethylene in a borophosphate catalyst -- BPO , with a specific surface of $24 m^2/g$ (Crusator, Emelt, and Jeller) [6]. It was established that different methods of producing borophosphate lead to the production of catalysts with different

USSR

UDC 615.272:576.851.553].012.8

BLAGOVESHCHENSKIY, V. A., RESHETNIKOVA, L. N., BULATOVA, T. I., and PEROVA, Ye. V., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR, Moscow

"Purification and Concentration of Cl. botulinum F Toxoid"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1972, pp 22-25

Abstract: Highly immunogenic toxoids can be obtained by a 2-stage method of purification and concentration. Primary purification is achieved by precipitating crude toxoid with 1 N hydrochloric acid in the isoelectric zone after adding 15% NaCl. Secondary purification involves repeated precipitation of the toxoid with 1 N hydrochloric acid in the isoelectric zone after adding NaCl (for toxoids prepared on casein media) or by precipitating it in the cold with 1 1/2 parts chilled acetone (for toxoids prepared on fish media). White mice immunized once with the purified and concentrated toxoids (5 toxoid binding units) survived the injection of 5000 MLD of type F toxin.

1/1

- 26 -

Microbiology

UDC 576.851.553.093.31

USSR

PEROVA, YE. V., and IVANOVA, L. G., Institute of Epidemiology and Microbiology
Imeni Gamaleya, Academy of Medical Sciences USSR

"Changes in the Chemical Composition of Culture Media During Culturing and
Toxin Formation by *Cl. botulinum*, Type F"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, Apr 71,
pp 134-139

Abstract: *Cl. botulinum* type F, was grown on casein-fungus (casein hydrolyzed
by *Asperigillus terricola* fungus, with 1% corn extract and 2% vitamin B com-
plex added to the hydrolysate) and whale liver-yeast media. The strongly
toxigenic strain No 470 of *Cl. botulinum*, type F, which was isolated in Den-
mark, and the weakly toxicogenic strain Ecland, which was isolated from the
soil of the Pacific Coast of the US, were used. Proteolytic activity, as
indicated by the content of amine N and peptone in the culture medium, was
greater at the same amount of growth for strain No 470 than strain Ecland.
The content of inorganic P in the medium increased to a greater extent on
culturing of strain No 470 than that of strain Ecland. This was presumably
due to a higher acid phosphatase activity of the more strongly toxigenic
strain. In the experiments conducted, it was not possible to differentiate
1/2

USSR

PEROVA, YE. V., and IVANOVA, L. G., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, Apr 71, pp 134-139

between alkaline phosphatase and adenosine triphosphatase activities. However, the alkaline phosphatase activity apparently was more pronounced in No 470 and the adenosine triphosphatase activity in strain Ecland. On growing strain No 470 on casein-fungus medium, a toxin activity of $4 \times 10^4 - 6 \times 10^4$ ID₅₀ /ml towards white mice was obtained vs 2×10^4 ID₅₀ /ml on culturing of the same strain in meat broth.

2/2

- 12 -

USSR

UDC 576.851.553.097.2

BULATOVA, T. I. and PEROVA, Ye. V., Institute of Epidemiology and Microbiology
I. I. Leni Gamaleya, Academy of Medical Sciences USSR

"Antigenic Structure of Cl. botulinum Types E and F"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1970, pp
28-32

Abstract: Study of nine type E Cl. botulinum strains (188-20, 8/E, Nanaimo, 4240, 809, 714, 153, Detroit 8, 45) and three type F strains (470, Craig, Eklund) showed that their toxins consist of two toxic components, a main or homologous component and a heterologous component present only in very small amounts. The toxins of the three type F strains were identical in antigenic structure because they were completely neutralized by type F serum against strain 470, and vice versa. Strain 470 is therefore suitable for use in preparing toxoids as well as therapeutic and diagnostic sera. Of the three strains, only strain 470 has nontoxic soluble and insoluble antigens in common with either botulinum types A and B, but it has no nontoxic antigens in common with either the Craig or Eklund strains. Of the nine type E strains studied, 188-20 seems to be the most suitable for preparation of diagnostic type-specific antitoxin serum, because it contains an insignificant amount of the toxic component of type F.

1/1

1/2 027
UNCLASSIFIED
TITLE--ANTIGENIC STRUCTURE OF CL. BOTULINUM, TYPES E AND F -U-
PROCESSING DATE--13NOV70
AUTHOR--(02)-BULATOVA, T.I., PEROVA, YE.V. P
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 4,
PP 28-32
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CLOSTRIDIUM BOTULINUM, HEMAGGLUTINATION, BACTERIAL TOXIN,
ANTIGEN, BLOOD SERUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/1471
STEP NO--UR/0016/70/000/004/0028/0032
CIRC ACCESSION NO--AP0109531
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0109531

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY CROSS REACTION OF NEUTRALIZATION, REACTION OF AGGLUTINATION AND HEMAGGLUTINATION THE AUTHORS STUDIED THE ANTIGENIC STRUCTURE OF CL. BOTULINUM TYPES E AND F. IT WAS ESTABLISHED THAT BOTULIN TOXINS, TYPES E AND F CONSISTED OF TWO TOXIC COMPONENTS. THE PRINCIPAL IN EACH ONE OF THEM IS HOMOLOGOUS COMPONENT. THE AMOUNT OF HETEROLOGOUS COMPONENT IS INSIGNIFICANT (0.005) A PERCENT) IN COMPARISON WITH THE HOMOLOGOUS COMPONENT. ANTIBOTULINUM SERUM, TYPE F AGAINST THE STRAIN NO. 470 COMPLETELY NEUTRALIZES THE TOXINS OF TWO OTHER STRAINS OF THIS TYPE UNDER STUDY, AND, ON THE CONTRARY; THEREFORE, STRAIN NO 470 MAY BE RECOMMENDED FOR THE PREPARATION OF TOXOIDS, AND ALSO OF THE THERAPEUTIC AND DIAGNOSTIC SERA. OF THE THREE CL. BOTULINUM STRAINS TYPE F ONLY STRAIN NO. 470 HAS NONTOXIC SOLUBLE AND INSOLUBLE ANTIGENS COMMON WITH THE CAUSATIVE AGENTS OF BOTULISM, TYPES A AND B. NO COMMON NONTOXIC ANTIGENS IN THE F 470 STRAINS WITH OTHER TYPE F STRAINS (CRAIG AND EKLUND) WERE DETECTED.

11/11/70

USSR

UDC 539.374

VERETENNIKOV, S. V., KRASIKOV, K. I., NOVOBRATSKIY, R. L., PERPER, E. A.,
POLYAK, S. M., UMANSKIY, YA. S., USIKOV, M. P., EPSHTEYN, G. N.

"Effect of an Impact of a Part of a Matrix Under Impulse Distortion"

V sb. Vysokoskorostn. deformatsiya (High-Speed Deformation -- Collection of Works),
Moscow, "Nauka", 1971, pp 108-109 (from RZh-Mekhanika, No 3, Mar 72, Abstract
No 3V653)

Translation: The structure and mechanical properties of nickel, nichrome
(NKh7) and Kh18N10T steel after hydraulic impulse stamping with impact and with-
out impact of the parts of the matrix were investigated. It was established
that collision occurs in a closed matrix and the central zone of the part under-
goes the strongest impact. The impact of a part of thickness 2 mm causes
strengthening of the material in the middle of the thickness of the part and
weakening in the zone of a depth up to 0.3 mm from the side of the surface of
the part contacting the matrix which is connected with nonuniform plastic deforma-
tion in the impact process. The weakening effect is supported by results of
studying parts of thickness 0.3 mm that have first undergone collision with the
matrix. Authors abstract.

1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--POSSIBLE CASE OF VIOLATION OF THE INDEPENDENCE OF COMPOUND NUCLEUS
DECAY OF THE INPUT CHANNEL SPIN -U-
AUTHOR--(05)-KARADZHEV, K.V., MANKO, V.I., PERSEYAN, A.N., CHUKREEV, F.E.,
KURCHATOV, I.V.
COUNTRY OF INFO--USSR
SOURCE--JETP LETTERS (USA), VOL. 11, NO. 2, P. 88-92 (JAN. 1970)
DATE PUBLISHED----JAN70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ANGULAR DISTRIBUTION, NUCLEAR SPIN, COMPOUND NUCLEUS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/1787 STEP NO--U5/0000/70/011/002/0088/0092
CIRC ACCESSION NO--AP0133692
UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0133692
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MEASUREMENTS OF THE ANGULAR
DISTRIBUTIONS OF REACTIONS ON NUCLEI WITH NONZERO SPIN UNCOVER NEW
POSSIBILITIES OF VERIFYING THE INDEPENDENCE OF THE COMPOUND NUCLEUS
DECAY METHOD OF THE INPUT CHANNEL OF THE REACTION. FACILITY:
ATOMIC ENERGY INST., USSR.

UNCLASSIFIED

USSR

UDC: 621.317:621.397.122(088.8)

PERSHAKOV, B. N., RAKOVSKIY, A. R., SOROKA, Ye. Z.

"A Method of Producing Brightness Pips on the CRT Screen of an Oscilloscope"

USSR Author's Certificate No 268517, filed 5 May 68, published 12 Aug 70
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A381 P)

Translation: A method is proposed for producing brightness pips on the CRT screen of an oscilloscope when measuring frequency deviation of the color subcarrier at the output of the coding device in the SECAM color TV system by sending the pip signal to the brightness modulator of the CRT. As a distinguishing feature of the patent, measurement precision is improved by using the signal from the output of the phase detector in the coding device as the signal for producing pips. The voltage of a mixture of TV signal quenching pulses with a peak-to-peak amplitude equal to the brightness signal from black to white is sent to the input of the coding device. E. L.

1/1

P
USSR

UDC: 621.317:621.397.122

PERSHAKOV, B. N., RAKOVSKIY, A. R., SOROKA, Ye. Z.

"A Method of Producing Brightness Marks on the Cathode Ray Tube Screen of an Oscilloscope"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 14, 1970, Author's Certificate No 268517, p 44

Abstract: This author's certificate introduces a method of producing brightness marks on the screen of an oscilloscope CRT when measuring the frequency deviation of a color subcarrier at the output of the coding device in the SECAM television system by transmitting the brightness mark signal to the brightness modulator of the CRT. As a distinguishing feature of the patent, the precision of the frequency deviation measurements is improved by using the signal from the output of the coding device phase detector as the signal for producing the brightness marks. The voltage of a mixture of television signal quenching pulses with a peak-to-peak amplitude equal to the brightness signal from black to white is sent to the input of the coding device.

1/1

USSR

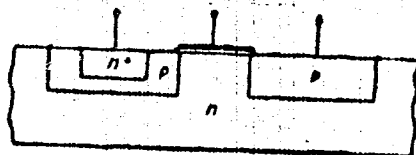
UDC: 621.382.3

PERSHENKOV, V. S., TKACHEV, B. V.

"The MDS Thyristor"

Kiev, Radicelektronika, Vol 15, No 7, Jul 72, pp 847-850

Abstract: The MDS thyristor is a combination of a four-layer PNPN⁺ device with a structure of the metal-dielectric-semiconductor type (see figure). In contrast to the conventional thyristor, the MDS thyristor is switched to the conducting state by a voltage applied to the gate with complete decoupling of the controlling circuit. This paper gives the equivalent circuit of the device for direct current as well as fundamental expressions which relate the structural and electrical parameters. Recommendations are made on improving the sensitivity of the thyristor during actuation.



1/1

USSR

UDC: 681.327.66

3

BEREZIN, A. S., VAGANOV, V. I., KUZ'MIN, V. A., MOCHALKINA, O. R., ONI-SHCHENKO, Ye. M., ORLIKOVSKIY, A. A., PERSHENKOV, V. S., Moscow "Order of the Red Banner of Labor" Engineering Physics Institute

"An Integrated Thyristor Memory Element"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Znaki, No 20, Jul 72, Author's Certificate No 343299, Division G, filed 7 Oct 70, published 22 Jun 72, p 174

Translation: This Author's Certificate introduces an integrated thyristor memory element which contains a thyristor with longitudinal structure, and a recording readout transistor connected by its collector to the P-base of the thyristor, and by its base through a resistor to the word recording input. As a distinguishing feature of the patent, the degree of integration is increased, and the interference immunity and recording and readout speed are increased by connecting the readout transistor emitter to the thyristor emitter, and also through a resistor to the word readout input, and by connecting the base of the readout transistor to the zero-potential line.

1/1

USSR

UDC: 621.374

ONISHCHENKO, Ye. M., PERSHENKOV, V. S., KIMARSKIY, V. I.

"Optimizing the Construction of Direct-Access Memory Units on Integrated Circuitry"

Kiev, Radioelektronika, Vol 15, No 7, Jul 72, pp 877-885

Abstract: The paper deals with problems of organizing central computer storage subsystems. It is shown that selecting the configuration of a central subsystem matrix on the basis of minimizing the number of leads without considering conditions of matching to the control diodes may lead to excessive power consumption by a device based on such subsystems as well as an increase in overall dimensions and a reduction in reliability. A method is proposed which enables selecting the optimum configuration of an integrated storage subsystem which accounts for the number of leads as well as the power consumption. The procedure is applicable both to subsystems which contain only memory cells, and to subsystems with built-in controlling circuits.

1/1

USSR

UDC 621.382.333.34

KUZ'MIN, V.A., MOCHALKINA, O.R., PERSHENKOV, V.S.

"Maximum Speed Of Response Of Low-Power Thyristors"

V sb. Poluprovodn. pribory i ikh primeneniye (Semiconductor Devices And Their Application--Collection Of Works), Issue 24, Moscow, "Sov. radio," 1970, pp 86-98 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4B284)

Translation: A computation is made of the maximum speed of response of a device with a given turn-on voltage for a one-dimensional model of a $p^+-n-p-n^+$ structure. It is shown that the total switching time has a minimum value at some value of the lifetime in a n-type base. The principal relations which are necessary for computation of high-speed thyristors of average power are found. 6 ill. 6 ref.

1/1

- 74 -

USSR

UDC: 577.4

PERSHEYEV, V. G.

"On Comparing the Complexity of Disjunctive and Conjunctive Minimum Normal Forms of Monotonic Functions in Logic Algebra"

Tr. Mosk. in-ta inzh. zh.-d. transp. (Works of the Moscow Institute of Railway Transportation Engineers), 1971, 395, pp 190-195 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V313)

[No abstract]

USSR

UDC: 577.4

PERSHEYEV, V. G.

"Experimental Construction of Lower Estimates of the Complexity of Disjunctive Normal Forms of Functions in Logic Algebra"

Tr. Mosk. in-ta inzh. zh.-d. transp. (Works of the Moscow Institute of Railway Transportation Engineers), 1971, vyp. 395, pp 210-213 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V315)

[No abstract]

1/1

- 8 -

USSR

UDC 51.621.391

PERSHEYEV, V. G.

"Minimization of Boolean Functions of a Large Number of Variables"

Tr. Mosk. In-ta Inzh. Zh-d. Transp. [Works of Moscow Institute of Railway Transport Engineers], No. 367, 1970, pp 293-299 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V480).

Translation: The possibilities of minimization of Boolean functions (bf) of not over 20 variables with a small number of undefined sets is studied. It is suggested that a normal matrix representation of the bf be used, allowing the bf to be fixed in economical form. Based on this representation, an algorithm is developed for minimization of the bf by computer.

1/1

UDC 541.65

KIMEL'FEL'D, Ya. M., SMIRNOVA, YE. M., PERSHIKOVA, N. I., KALIYA, O. L., TEMKIN, O. N., and FLID, R. M., Institute of Spectroscopy, Academy of Sciences USSR, and Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov, Moscow

"Vibrational Spectra and the Structure of Phosphine and Phosphite Complexes of Palladium Chloride and Bromide"

Moscow, Zhurnal Strukturnoy Khimii, Vol 13, No 4, Jul-Aug 72, pp 622-625

Abstract: On the basis of data obtained by IR and Raman spectroscopy of the phosphine complexes $\text{Pd}(\text{PPh}_3)_2\text{X}_2$ ($\text{X} = \text{Cl}, \text{Br}$) and the phosphite complexes $\text{Pd}/\text{P}(\text{OPh})_3/2\text{X}_2$ ($\text{X} = \text{Cl}, \text{Br}$), it was established that the phosphine complexes have a trans-structure and the phosphite complexes a cis-structure. The difference in structure explains why the phosphite complexes are effective catalysts in the synthesis of acrylic acid esters from acetylene at atmospheric pressure according to $\text{C}_2\text{H}_2 + \text{CO} + \text{ROH} \rightarrow \text{CH}_2=\text{CH}-\text{COOR}$, while the phosphine complexes are inactive in catalyzing this reaction. The authors thank G. M. Zhizhina, N. I. Afanas'yeva, and A. V. Bobrova for assistance in determining the spectra of the complexes.

1/1

USSR

UDC: 681.268.9

MUKANOV, D. M., STROYKOVSKIY, A. K., PERSHIN, A. A.

"A Radioisotopic Instrument for Automatically Measuring the Weight of a Sintering Charge"

V sb. Radioizotop. sredstva kontrolya i avtomatiz. tekhnol. protsessov v prom-sti (Radio Isotope Means of Monitoring and Automating Technological Processes in Industry--collection of works), Moscow, Atomizdat, 1972, pp 306-311 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 6, Jun 72, Abstract No 6.32.292)

Translation: The described weight meter enables continuous determination of the weight of a material during free fall at transfer points with simultaneous weighing of the components of a sintering charge at 36 points. The measurement method is based on the Compton process of interaction between gamma rays and matter.

1/1

- 1/2 -

USSR

UDC: 681.121.872

GOLDAYEV, I. P., PERSHIN, A. P., CHEREPANOV, V. P.

"On the Problem of Using Nonstandard Venturi Tubes to Measure Minute Rates of Flow of Gaseous Substances"

Samoletostr. i tekhn. vozd. flota. Resp. mezhved. nauchno-tekhn. sb. (Air-craft Construction and Air Force Technology. Republic Interdepartmental Scientific and Technical Collection), 1970, Vyp. 17, pp 34-37 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 9, Sep 70, Abstract No 9.32.751)

Translation: Measurement of minute rates of flow of gaseous substances precludes the use of standard Venturi tubes since the large diameter of the constriction in these tubes prevents measurement of the pressure drop with sufficient precision. A method is outlined for experimentally determining the flow rate coefficient of Venturi tubes with a constriction diameter of considerably less than 50 mm. A diagram is given of an installation which permits highly precise determination of the flow rate coefficient of small Venturi tubes. Data are given from an experimental study of a slow-flow tube designed at the Khar'kov Aviation Institute. Five illustrations, bibliography of one title.

1/1

• 92 •

USSR

UDC 541.183.5:546.799.4:546.431'226

GREBENSHCHIKOVA, V. I., DAVYKOV, Yu. P., and PERSHIN, A. S.

"The Question of the Adsorption of Pu^(IV) on a BaSO₄ Precipitate"

Leningrad, Radiokhimiya, Vol XIII, No 3, 1971, pp 442-443

Abstract: As is well known, adsorption of mono- and bivalent cations on polar crystals is subject to the laws of secondary electrostatic adsorption, while adsorption on tri- and tetravalent metals shows a number of deviations from those laws. The present study was made to obtain experimental data on the adsorption of tetravalent plutonium in the region of its hydrolysis on a BaSO₄ suspension recrystallized to form a constant surface. Data obtained indicate clearly that the equilibrium distribution of Pu^(IV) between the BaSO₄ precipitate and its saturated solution is established in 10-15 min. -- evidence of the adsorption capture of plutonium by the BaSO₄ surface. Also observed was a dependence of plutonium adsorption on SO₄²⁻ ion concentration and H⁺ ion and Na⁺ ion concentration, indicating that the plutonium is adsorbed twice -- that is, it enters the external "lining" of a double electrified layer. Adsorption evidently increases in the pH = 0.8-2.4 interval. Further, it is concluded that either hydrolyzed Pu^(IV) ions are not adsorbed

1/2

USSR

GREBENSHCHIKOVA, V. I., et al., Radiokhimiya, Vol XIII, No 3, 1971, pp 442-443

on a BaSO_4 precipitate, or else that the adsorbability of the hydrolyzed forms is less than that of $\text{Pu}^{(\text{IV})}$ ions.

The tests showed that with $\text{pH} = 1.4$ (ca. 40% of $\text{Pu}(\text{OH})^{3+}$ was present in the solution), there is increase in the surface charge of the BaSO_4 precipitate, while with $\text{pH} = 1.0$ and $\text{pH} = 1.8$ there is competitive action by Na^+ ions.

The general conclusion reached is that either hydrolyzed forms of $\text{Pu}^{(\text{IV})}$ are not adsorbed on a BaSO_4 , or else are adsorbed according to the laws of secondary electrostatic adsorption. Further experiments are now in progress, including some to determine the condition of $\text{Pu}^{(\text{IV})}$ in solution.

2/2

- 4 -

USSR

(11) 391832 (21) 1016831/31-16 (22) 09.07.65
(51) A 61k 27/00 (53) 547.62:615.3

(72) KRAFT, M. Ya., KATYSHKINA, V. V., PERSHIN, G. N., BOGDANOVA, N. S.,
KRASNOV, M. L., and KUKHAR', E. Ye., (71) All-Union Scientific-Research
Chemicopharmaceutical Institute imeni S. Ordzhonikidze

(54) "A Medicinal Preparation"

Moscow, Otkrytiye Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 32, 1973, p 32

Translation: Application of 1,2,3,4-tetraoxotetrahydronaphthalene (Oxoline)
as an antiviral preparation.

1/1

- 41 -

USSR

UDC 615.281.221.1:547.547.831.6

VASIL'YEVA, V. F., ZAGRUTDINOVA, R. A., SHCHUKINA, M. N., PERSHIN, G. N.,
and ZYKOVA, T. N., All Union Scientific Chemical-Pharmaceutical Research
Institute imeni S. Ordzhonikidze, Moscow

"Synthesis and Biological Properties of 6-Arylazo Derivatives of Substituted
1,2,3,4-Tetrahydroquinoline"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 7, No 9, Sep 73, pp 19-21

Abstract: A series of arylazo derivatives of 1,2,3,4-tetrahydroquinoline was
synthesized: 1-alkyl- (from C₁ to C₄) and 1-benzyl-1,2,3,4-tetrahydroquino-
lines were obtained by reduction of 1-substituted quinolinium iodides or bro-
mides with formic acid; reduction of 2-benzylquinoline with metallic sodium
in butanol gave the respective tetrahydroderivative (I), which condensed with
γ-dimethylaminopropyl chloride gave 1-(γ-dimethylaminopropyl)-2-benzyl-
1,2,3,4-tetrahydroquinoline; (I) also yielded 1-benzoyl-2-benzyl-1,2,3,4-
tetrahydroquinoline. All of these compounds were diazotized with phenyl-
diazonium, p-chlorophenyldiazonium, and p-nitrophenyldiazonium salts to yield
the respective 6-arylazo derivatives. Subjected to the assay against the
tubercule bacillus H₃₇Rv, three derivatives showed pronounced tuberculo-
1/2

- 70 -

USSR

VASIL'YEVA, V. F., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 7, No 9, Sep 73, pp 19-21

static activity: 6-phenylazo-2-benzyl-1,2,3,4-tetrahydroquinoline; 6-phenyl-azo-1-(γ -dimethylaminopropyl)-2-benzyl-1,2,3,4-tetrahydroquinoline hydrochloride, and 6-(p-nitrophenylazo)-1-(γ -dimethylaminopropyl)-2-benzyl-1,2,3,4-tetrahydroquinoline.

2/2

USSR

UDC 619:576.809.518:576.858.2

BADAYEV, F. A., CHEVELEV, S. F., MITIN, N. I., ARKHIPOV, N. I., and PERSHIN, G. N., All-Union Scientific Research Institute of Veterinary Virology and Microbiology and All-Union Scientific Research Chemical-Pharmaceutical Institute

"The Antivirus Activity of Synthetic Compounds"

Moscow, Veterinariya, No 6, Jun 73, pp 44-46

Abstract: Indolyl-3-propiohydroxamic acid (1), indolyl-3-acetohydroxamic acid (2), 2,4,6-trichlororesorcinol (3), 2,4,6-trichlorophloroglucinol (4), 2,4,6-tribromophloroglucinol (5), N-(o-tolyl)-N-cyanoethylaminobenzoquinone (6), tetrahydrotetraoxonaphthalene dihydrate (oxolin) (7), beta-indolyl-propionic acid (8), and beta-indolylbutyric acid (9) inhibited to 98.4% of more the propagation of the virus of Aujeszky's disease in a cell culture. The prophylactic and therapeutic activities of (1), (2), (3), and (7) and the prophylactic activity of (4), (5), (6), (7), and (8) in connection with the experimental infection of rabbits with the virus were studied. A prophylactic activity was exhibited by (1), (3), and (8): 16.6-40% of the infected rabbits that had been treated with these compounds survived, whereas all of

1/2

USSR

BADAYEV, F. A., et al., Veterinariya, No 6, Jun 73, pp 44-46

the controls died. A slight therapeutic effect was exerted by (2) and (6): the rabbits treated with (2) died 7 days later than controls, while one out of three animals treated with (7) survived. (1), (3), and (8) were also tested in connection with experiments in which sheep were infected with Aujeszky's disease. These compounds had a slight therapeutic effect on the sheep.

2/2

USSR

UDC 542.91:541.69:547.362:547.556.9

SHLENIAKOVA, T. G., BARANOVA, M. I., KONYASHEVA, N. V., KOTLYAREVSKIY, I. L.,
 PERSHIN, G. N., and MIKHERINA, A. L., Institute of Chemical Kinetics and Com-
 bustion, Siberian Branch Acad. Sci. USSR, and Chemical-Pharmaceutical In-
 stitute, Acad. Med. Sci. USSR

"Synthesis and Study of the Antimicrobial Activity of the Amino Derivatives of
 4-Hydroxy-4'-ethynylazobenzene"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 72,
 pp 978-980

Abstract: 20 g of 4-Hydroxy-4'-acetylazobenzene (I) was refluxed for 8 hrs
 with 11.6 g K_2CO_3 , 150 ml acetone, and 15.2 g allyl bromide, cooled, and
 poured into water. Solid material was obtained and after recrystallization
 from alcohol yielded 17.9 g 4-allyloxy-4'-acetyl-azobenzene (II), m. p. 130-
 132. (II) was hydrogenated over Pd/ $CaCO_3$ to yield 4-propoxy-4'-acetylazo-
 benzene (III), m.p. 117-120°. Chlorination of (III) followed by dehydrochlori-
 nation yields 4-propoxy-4'-ethynylazobenzene, m.p. 97-98°. Mannich conden-
 sation of that product yields 4-propoxy-4'-(piperidinopropyne-1"-yl-1")-azo-
 benzene, m.p. 188-190°. However, the free hydroxy analogue -- 4-hydroxy-4'-
 ethynylazobenzene reacts only with difficulty via the Mannich condensation

1/2

SSR

SHISHAKOVA, T. G., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 72, pp 978-980

giving low yields of 4-hydroxy-4'-(morpholinopropyn-1"-yl-1")-azobenzene (VI), m.p. 250-253° and 4-hydroxy-4'-(piperidinopropyn-1"-yl-1")-azobenzene (VIII), m.p. 177-178°. (VII) showed a rather high antitubercular activity, surpassing (VI). Several analogues of (VII) were bioassayed, but none showed any activity. It was concluded that in order to have biological activity a compound must have a free hydroxyl group and a single triple bond.

2/2

- 39 -

2

USSR

UDC 615.281.5.035.4:616.988.75-036.8

AKSENOV, V. A., SELIDOVKIN, D. A., GLADKIKH, G. N., GRAKHOVA, A. G., BOGDANOVA, N. S., and PERSHIN, G. N., Ministry of Health USSR, and All Union Scientific Research Chemicopharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"Evaluation of the Prophylactic Effectiveness of the New Soviet Antiviral Agent Oxoline During the 1969 Influenza Epidemic"

Moscow, Farmakologiya i Toksikologiya, Vol 33, No 6, Nov/Dec 70, pp 726-733

Abstract: Oxoline, a polyox compound of the naphthalene series, is a virucidal drug with selective activity against influenza virus and a local action. It is effective in the treatment of virus infections of the eyes and skin, and relieves the symptoms of influenza in patients on application in the nasal and pharyngeal cavities. Its effectiveness as an influenza preventive was studied during the 1969 epidemic caused by the A2 virus. Tests were carried out on 9,600 children 1-7 years old in two cities. Oxoline was applied twice a day for 25 days on the mucosa of the nose in the form of an 0.25-0.5% vaseline ointment, using 0.3-0.5 g ointment per child per day. The coefficient of effectiveness in preventing influenza was 1.7, corresponding to a reduction of the incidence of influenza by 43% over the controls. The frequency of side effects was 0.6 and 0.9% for the 0.25 and

USSR

AKSENOV, V. A., et al, Farmakologiya i Toksikologiya, Vol 33, No 6, Nov/Dec 70, pp 726-733

and 0.5% ointment, respectively. The 0.25% ointment was as effective as the 0.5% ointment. The effectiveness coefficient was the same for children 1-3 years and 4-7 years old, a fact which indicated that oxoline produces a barrier effect, preventing entrance of the infection into the organism through the nasal mucosa, and is not resorbed into the blood. Prophylactic treatment with oxoline alleviated the clinical course of influenza when infection did occur and shortened the duration of the disease.

FILE--N,4,PYRIMIDINYL,ETHYLAMINE. III. 2,5,6,DERIVATIVES -U- PROCESSING DATE--20NOV70

AUTHOR--(05)--SOKOLOVA, V.N., MEDNIKOVA, G.A., MAGIDSON, O.YU.,
SHCHERBAKOVA, L.I., PERSHIN, G.N.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (3), 422-6

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--PYRIDINE, AMINE DERIVATIVE, ANTITUBERCULAR DRUG,
BACTERIOSTASIS, MOLECULAR STRUCTURE, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAHE--3003/0995

STEP NO--UR/0409/70/000/003/0422/0426

CIRC ACCESSION NO--AP0130041

UNCLASSIFIED

272 020

UNCLASSIFIED

PROCESSING DATE--20NOV70

CAC ACCESSION NO--AP0130041

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. SHOWN ON MICROFICHE. HIGH
TUBERCULOSTATIC ACTIVITY AGAINST H SUB37 RV (MYCOBACTERIUM TUBERCULOSIS)
HAS FLUND FOR A FEW OF THE SYNTHESIZED COMPOS., THE OTHERS SHOWED
BACTERIOSTATIC ACTIVITY AGAINST L(ACETOACILLUS)CASEI 7369 AND
STREPT(OCOCCUS) FAECALIS 8043. FACILITY: YSES. NAUCH.--ISSLED.
KHIM.-FARM. INST. IM. OPDZHONIKIDZE, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 541.69+547.551+547.362

FERSHIN, G. N., MILCOVANOV, S. N., MIKHERINA, A. I., SMISHENKOVA, T. G.,
SARDANOVA, M. I., and KOTLYAREVSKIY, I. L., All-Union Chemical-Pharma-
ceutical Scientific Research Institute Imeni S. Ordzhonikidze, and
Institute of Chemical Kinetics and Combustion of the Siberian Division
of the Academy of Sciences, USSR

"Bacteriological Properties of Some Aromatic Mono- and Diacetylene
Amines"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8,
Aug 70, pp 1111-1114

Abstract: Continuing their studies on the germistatic properties of
acetylene amines, the authors report biological properties of a series
of resorcine, phloroglucinol, and mesitylene derivatives. The germi-
static activity was tested in vitro on 17 microorganisms. It was found
that only amines with one triple bond in each aliphatic chain were
active. Introduction of a second triple bond led to an almost complete
inactivation of the molecule.

1/1

Therapy

6

USSR

UDC 615.281.8.035.4:616.988.75-053.4-036.8

AKSENOV, V. A., SELIDOVSKIN, D. A., GLADIKH, G. H., KUBLIKOV, V. S., KUZNETSOVA, O. V., MOLODTSOVA, L. D., BERSENEVA, R. A., AKSENOV, L. A., ECGDANOVA, N. S., and PERSHIN, G. H., All Union Chemico-Pharmaceutical Institute imeni S. Ordzhonikidze, Ministry of Health USSR

"Study of the Prophylactic Value of the New Soviet Antiviral Preparation Oxolin in Preschool Children during the 1969 Influenza Epidemic"

Moscow, Pediatriya, No 5, 1970, pp 18-22'

Abstract: The viricidal agent oxolin (tetraoxotetrahydronaphthalene (dihydrate) is effective in the treatment of adenovirus kerato-conjunctivitis, herpetic keratitis, dermatitides of virus etiology, and some acute respiratory diseases. In a double-blind trial, oxolin was administered to 4,170 children one to seven years of age in an unidentified Soviet city during the 1969 influenza epidemic. (It was applied to the nasal mucosa in the form of a 0.25% ointment on a vaseline base twice daily for 40-49 days). Oxolin reduced the incidence of influenza 1.7 times (43%) compared with control children. Severe forms of the disease and complications were 1.1-1.4 times more frequent in the latter than in those who received the preparation, and the course of the disease was 1.2 days longer on the average. The use of oxolin produced side effects in only 0.6% of the cases.

1/1

1/2 023

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--3,5,3 PRIME,5 PRIME,TETRAABROMO,2,4,2 PRIME,4
PRIME,TETRAHYDROXYBIPHENYL COMPOSITIONS FOR TREATING VIRAL EYE DISEASES
AUTHOR-(04)-NIKOLAIEVA, I.S., KRAFT, M.YA., PERSHIN, G.N., BUGDANOVA, N.S.

COUNTRY OF INFO--USSR

SOURCE--FR. DEMANDE 2,007,474

DATE PUBLISHED--09JAN70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DRUG, EYE DISEASE, PATENT, VIRUS DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1079

STEP NO--FR/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AA0131626

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AA0131626

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. THE TITLE COMPO. (TEBROPHEN) AS SUCH OR IN 0.1, 0.25, AND 1PERCENT OINTMENTS IN VASELINE (VASELINE 80, VASELINE OIL 20PERCENT) IS EFFECTIVE IN VIRAL EYE INFECTIONS, INCLUDING VARIOUS FORMS OF HERPETIFORM KERATITIS. HUMAN TESTS SHOWED RELIEF IN 3-5 DAYS AND CURE IN 10-14 DAYS. TEBROPHEN IS ALSO EFFECTIVE IN OTHER VIRAL INFECTIONS. FACILITY: CRDZHONIKIDZE, S., ALL UNION SCIENTIFIC RESEARCH CHEMICAL PHARMACEUTICAL INSTITUTE.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--IMMUNODEPRESSIVE SUBSTANCES -U-
AUTHOR--PERSHIN, G.N.
COUNTRY OF INFO--USSR
SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 216-22
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--IMMUNITY, ACTH, ANTIBIOTIC, ALKALOID

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3009/0124 STEP NO--UR/0063/70/015/002/0216/0222
CIRC ACCESSION NO--AP0138989

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0138989

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 155 REFS. COVERING THE VARIOUS TYPES OF DEPRESSORS OF IMMUNITY REACTIONS, INCLUDING ACTH, GLUCOCORTICOIDS, ALKYLATING AGENTS, 4 AMINOQUINOLINE DERIVS., SALICYLATES, PHENYLMETHYLPYRAZOLONE DERIVS., AMINOCAPROIC ACID DERIVS., ALKALOIDS, AND ANTIBIOTICS.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--A NEW INJECTABLE MEDICINAL FORM OF ETHOXIDE -U-
AUTHOR--(04)-PERSHIN, G.N., ZYKOVA, T.N., SHAROVA, S.A., KUTCHAK, S.N.
COUNTRY OF INFO--USSR
SOURCE--FARMAKOL. TOSKIKOL. (MOSCOW) 1970, 33(1), 101-5
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--TUBERCULOSIS, ANTITUBERCULAR DRUG, MOUSE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/1159 STEP NO--UR/0390/70/033/001/0101/0105
CIRC ACCESSION NO--AP0115178
UNCLASSIFIED

272 012
CIRC ACCESSION NO--AP0115178 UNCLASSIFIED PROCESSING DATE--13NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ETHOXIDE (4, 4 PRIME
DIETHOXYDITHIOCARBANILIDE) IN OIL AND H SUB2 O SUSPENSIONS ADMINISTERED
I.M. TO MICE WAS 10 FOLD MORE EFFECTIVE THERAPEUTICALLY THAN WHEN
ADMINISTERED ORALLY. THE INOCULATION INDEX FOR TUBERCULOSIS BACILLI
FROM THE LUNGS OF MICE INJECTED I.M. WITH ETHOXIDE SUSPENSION ONCE A
WEEK AT 80 OR 40 MG WAS HALF THAT IN CONTROLS OR IN MICE RECEIVING
ETHOXIDE DAILY ORALLY. ETHOXIDE IN A 20PERCENT H SUB2 O AND 20PERCENT
OIL SUSPENSION HAD NO OVERALL TOXIC OR LOCAL IRRITATING ACTION. AQ.
SUSPENSIONS CAUSED MORE GRADUAL AND MORE ABUNDANT DEVELOPMENT OF
CONNECTIVE TISSUE, BUT OIL SUSPENSIONS FACILITATED DEPOSITION AND CAUSED
LESS SIGNIFICANT REACTIVE CHANGES IN THE DEVELOPING GRANULOCYTIC TISSUE.
AT 20PERCENT OIL SUSPENSION OF ETHOXIDE IS RECOMMENDED FOR CLIN.
STUDIES ON TUBERCULOSIS PATIENTS. FACILITY: LAB. KHIOTER.
INFEKTS. ZABOL., VSES. NAUCH.-ISSLED. KHM FARM INST. IM. ORDZHONIKIDZE,
MOSCOW, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--PROPERTIES OF 2-NITROBENZIMIDAZOLES -U-
AUTHOR--(05)-POZHARSKIY, A.F., PERSHIN, G.N., ZVEZDINA, E.A., ZYKOVA, T.N.,
MILOVANOV, S.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. FARM. ZH. 1970 4(1) 14-16
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY
TOPIC TAGS--ORGANIC NITRO COMPOUND, BENZIMIDAZOLE, BACTERICIDE, FUNGICIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/1520 STEP NO--UR/0460/70/004/001/0014/0016
CIRC ACCESSION NO--AP0112914
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112514

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 2, NITROBENZIMIDAZOLE (I) (0.163 G), 0.08 G NaOH, 4 ML EtOH, AND 0.35 ML MEI YIELDED 0.15 G 1, METHYL, 2, NITROBENZIMIDAZOLE (II), M. 170DEGREES (EtOH); 79.3PERCENT 1, ETHYL DERIV., M. 105DEGREES (MEOH), WAS ALSO PREPD. II (0.27 G) WAS ALSO PREPD. FROM 0.26 G I AND 0.156 G CH SUB2 N SUB2 IN 40 ML Et SUB2 O. A MIXT. OF 0.163 G I, 0.1 G NaOH, 0.25 G PHME SUB2 (PHCH SUB2) N PRIME POSITIVE CL PRIME NEGATIVE, AND 3 ML H SUB2 O GAVE 0.13 G 1, BENZYL, 2, NITROBENZIMIDAZOLE, M. 107DEGREES (MEOH). II (0.15 G), ETONA (FROM 0.08 G NA), AND 7 ML EtOH YIELDED 1, METHYL, 2, ETHOXYBENZIMIDAZOLE (0.12 G), PICRATE M. 163-4DEGREES (EtOH). II (0.25 G), 0.32 G PHCH SUB2 NH SUB2, AND 5 ML XYLENE YIELDED 0.25 G 1, METHYL, 2, (BENZYLAMINO) BENZIMIDAZOLE, M. 167DEGREES (MEOH). THE COMPS. WERE TESTED FOR ANTIBACTERIAL (11 STRAINS) AND ANTIFUNGAL (6 STRAINS) ACTIVITY.

UNCLASSIFIED

USSR

UDC: 615.37

P
PERSHIN, G.N., Corresponding Member of Academy of Medical Sciences

"Immunodepressants"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D.I. Mendeleeva
Vol 15, No 2, 1970, pp 216-222

Abstract: The allergic reactions of sensitivity are basically antigen-antibody reactions. Antibodies are produced by lymphocytes and plasmacytes, and the antigen may be anything occurring in nature which can combine with a protein molecule, forming a new substance which the body endeavors to reject. These reactions may be severe enough to cause death. The rejection of transplant organs takes place in this manner. But a part of one's own tissue entering the circulation may be antigenic and stimulate antibody production, causing a chain reaction of degenerative changes in one's own organs. These are auto-immune reactions. Idiopathic conditions, multiple sclerosis, hemolytic anemia, various dystrophies, and degenerative chronic conditions are auto-immune reactions of allergic sensitivity. To reduce histidine and serotonin in allergies with antihistamines is superficially palliative. For therapeutic effect it is necessary to depress the immunological function of lymphocytes and plasmacytes. Among the possible physical, chemical, and biological methods of depressing the immune reactions are: ACTH, glucocorticoids, alkylating substances, derivatives of 4-aminocholine, salicylates and derivatives of phenylmethylpyrazolone, ϵ -aminocaproic acid and its

270

USSR

PERSHIN, G.N., Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D.I. Mendeleeva, Vol 15, No 2, 1970, pp 216-222

derivatives, alkaloids, antibiotics, and antimetabolites. In the Soviet Union, a product called salazopyridazine, obtained by nitrogen coupling of sulfapyridazine and salicylic acid, is a well-tolerated immunodepressant. The development of these substances can make possible the transplantation of organs and help the sufferers from immunological reactions of allergic sensitivity.

2/2

1/2 015

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--INDOLE DERIVATIVES. V. SYNTHESIS AND TUBERCULOSTATIC ACTIVITY OF
INDOLE, 3, ALKANOIC ACIDS -U-

AUTHOR--(05)-AVRAMENKO, V.G., PERSHIN, G.N., MUSHULOV, P.I., MAKEYEVA,
O.O., YERY SHEV, B.YA.

COUNTRY OF INFO--USSR

SOURCE--KHIM.-FARM. ZH. 1970, 4(3), 15-18

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INDOLE DERIVATIVE, ORGANIC ACID, CHEMICAL SYNTHESIS, MOLECULAR
STRUCTURE, TUBERCULOSIS

CONTROL MARKING--NO RESTRICTIONS.

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1998/0361

STEP NO--UR/0450/70/004/003/0015/0018

CIRC ACCESSION NO--AP0121049

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121049

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MIXT. OF 0.05 MOLE INDOLE, 0.1 MOLE OMEGA CHLORO OR BROMDALKANECARBOXYLIC ACID, 0.4 MOLE KOH AND 50 ML H SUB2 O WAS PLACED IN AN AUTOCLAVE, TEMP. RAISED TO 240-50DEGREES DURING 2-2.5 HR AND KEPT 12 HR AT THIS TEMP. TO YIELD 10 I AND THEIR ESTERS AND HYDRAZIDES. THE TUBERCULOSTATIC ACTIVITY OF I AND I HYDRAZIDES IS GIVEN. FACILITY: MOSK. FHIM.-TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

AVRAMENKO, V. G., et al, Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol IV, No 3, 70, pp 15-18

and chloracetic acid. In recent years ω -chloroalkannic acids with an odd number of carbon atoms have become readily available. Indole was alkylated with ω -haloalkannic acids in a strongly alkaline medium by heating in an autoclave; 240 -- 250°C, 18 -- 20 atm pressure and a 1:2 indole-to-haloalkannic acid ratio appear to be the optimum reaction conditions. The yield of ω -indoly-3-alkannic acids was 42 -- 90%. The tuberculostatic activity was determined in vitro in a Soton medium with and without blood serum of a horse. Use was made of human microbacteria Academia and H37Rv. The compounds were found to have tuberculostatic activity.

2/2

- 26 -

USSR

UDC 612.017.1.014.2

PERSHIN, S. B., KHALATYAN, N. A., PINEGIN, B. V., and UTESHEV, B. S., Second
Moscow Medical Institute imeni Pirogov

"Kinetics of Rosette-Forming Cells in Primary and Secondary Immunological
Responses"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971,
pp 83-88

Abstract: The kinetics of rosette-forming spleen cells was studied in mice inoculated and 5 weeks later reinoculated with sheep erythrocytes. The number of these cells increased slightly during the first two days and exponentially during the next four days, after which they decreased slowly only to increase again on day 11. In the secondary immunological response, the rosette-forming cells increased more rapidly than in the primary response, the peak occurring on day 4 after the second injection of the antigen. A statistically significant relationship was noted between the number of rosette-forming cells and the size of the primary sensitizing dose of antigen in the secondary immunological response. These findings are discussed in the light of Sercarz and Coons' hypothesis on the development of immunocompetent cells.

1/1

USSR

UDC 615.272.7.015.46

PERSHIN, S. B., PINEGIN, B. V., UTESHEV, B. S., and KHALATYAN, N. A., Chairs
of Microbiology and Pharmacology, Second Moscow Medical Institute imeni
N. I. Pirogov

"The Effect of Nucleic Acid Metabolism Inhibitors on the Population of
Antibody-Forming Cells in Secondary Immunological Response"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 15,
No 4, Jul/Aug 71, pp 46-52

Abstract: Experiments with mice have revealed that during the secondary
immunological response, nucleic acid inhibitors (aurantin and mitomycin C)
depress the growth of antibody-forming cells, especially in the early stages
of immunogenesis. Populations of indirect plaque-forming cells are depressed
to a greater degree than populations of direct plaque-forming and rosette-
forming cells. This is a specific characteristic of the secondary immunologi-
cal response, which is absent in the primary response. 5-Fluorouracil
depresses populations of both direct and indirect plaque-forming cells. How-
ever, direct plaque-forming cells are more sensitive to this immunodepressant
than indirect plaque-forming and rosette-forming cells. The rosette-forming
cells are most sensitive to auranine and least sensitive to 5-fluorouracil
and mitomycin C.

1/1

- 42 -

USSR

AKHMANOV, S. A., ZHDANOV, B. V., KOVRIGIN, A. I., and PERSHIN, S. M., Moscow
State University imeni N. V. Lomonosov

"Effective Stimulated Scattering in the Ultraviolet Region of the Spectrum and
Variance in Gain in the 0.26-1.06-Micron Range"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15,
No 5, 5 Mar 72, pp 266-269

Abstract: Effective induced Raman emission and Mandelstam-Brillouin scattering were obtained in the UV region, and some characteristics of the two types of scattering were studied. An increase in Raman susceptibility in the UV region made it possible to create an effective Raman liquid-nitrogen laser with pumping at $\lambda = 0.26$ micron (at a pumping power of 10 kw in a system without mirrors it was possible to excite Stokes generation with an efficiency reaching dozens of percentage points). A marked increase in gain in the UV region was also recorded for stimulated Mandelstam-Brillouin scattering. The exciting radiation was obtained from a stable neodymium-laser, fourth-harmonic generator with one longitudinal and one transverse mode. The use of a cascaded system permitted simultaneous unimode radiation at $\lambda_1 = 1.06$ microns, $\lambda_2 = 0.53$ micron, $\lambda_3 = 0.35$ micron, and $\lambda_4 = 0.26$ micron. The gain factor for $1/2$

USSR

AKHMANOV, S. A., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 5, 5 Mar 72, pp 266-269

stimulated Raman scattering in the UV region was measured in a parallel beam, and a difference was found in the character of the gain curves. Threshold pumping power values were measured for the Raman laser, as well as threshold pumping energies for stimulated Mandelstam-Brillouin backscattering in crystal and fused quartz. The frequency dependence of threshold characteristics and the character of the light breakdown in crystal and fused quartz and ADP were studied.

The authors thank A. Z. Grasyuk for providing the cryostat, and L. Pavlov and V. I. Kuznetsov for their assistance in the experiments.

2/2

- 15 -

USSR

UDC: 539.411

VDOVYKIN, G. P., DREMIN, A. N., PERSHIN, S. V., and SHEVALEYEVSKIY, I. D.,
Moscow

"Transformation of Meteorite Materials in Shock Compression Experiments at
Pressures of 500 and 1000 kbar Set Up by Explosions"

Novosibirsk, Fizika Goreniya i Vzryva, Vol 9, No 4, Jul-Aug 73, pp 535-541

Abstract: The authors conducted experiments on the shock compression (non-destructive) of Migeya carbonaceous chondrite at $p = 500$ kbar and of the graphite of the Yadymlinskiy iron meteorite at $p = 1000$ kbar. This was done in order to explain the transformations of meteorite substances under the effect of strong shock waves. Diamonds and microcrystals (less than one micron) were synthesized which are found in concretions with graphite. The diamonds and microcrystals were synthesized from Mineya carbonaceous chondrite and the graphite of the Yadymlinskiy iron meteorite. The synthetic diamond-graphite concretions are similar to those of meteorites with respect to morphology and phase composition. The results show that ureilites are secondary meteorites with respect to their origin which were formed from carbonaceous chondrites under the effect of strong shock waves in space.

1/1

- 37 -

Hydrobiology

USSR

PERSHIN, S.V., SOKOLOV, A.S., and TOMILIN, A.G., Institute of Zoology, Academy of Science USSR, Higher Naval Engineering School imeni F.E. Dzerzhinskiy, Leningrad, and All Union Agricultural Institute of Correspondence Education, Moscow

"Elasticity of Dolphin Fins Controlled by Special Vascular Organs"

Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 3, Jan 70, pp 709-712

Abstract: Four types of dolphins were studied. It was found that during swimming, propulsive waves pass continuously along the dolphin's body. The propulsion mechanism consists of a strongly deforming body and tail fin, as well as other fins, all representing complex hydrodynamic wings. A detailed microscopic and x-ray analysis of the tail fin is given. The vascular network is very interesting, in that all blood vessels consist of a thick-walled artery surrounded by 10-20 smaller thin-walled veins. Another interesting aspect of the vascular network in the tail fin is the fact that there is one general distribution center of the blood vessels, which to some extent controls the elasticity of the entire fin.

1/1

USSR

UDC: 621.391.2

PERSHIN, V. T. and CHIRKIN, N. M.

"Frequency Shift and UHF Pulse Frequency Modulation in a Magneto-static Delay Line With Adiabatically Varying Parameters"

Minsk, Izvestiya Akademii Nauk BSSR--Seriya fiziko-tekhnicheskikh nauk, No 1, 1972, pp 122-124

Abstract: This paper analyzes the possibility of using a magneto-static delay line with parameters varying in time for shifting the frequency and the frequency modulation of UHF pulses. It is an extension of earlier papers reporting changes in the spectrum of magnetostatic waves propagated under conditions of adiabatically varying magnetic fields. The delay line is assumed to be a cylindrical rod of iron-yttrium garnet, placed in an external magnetic field of constant intensity, under the condition that the inner magnetic field along the crystal axis is a function of the longitudinal coordinate and the time. It is further assumed that, at the initial moment in time, the UHF pulse in the form of a spin wave is propagated as a plane wave and is fully contained in the delay line. From the results of the computations, a plot is made of the pulse frequency shift as a function of the magnetic field intensity. This is found to agree closely with experimental

1/2

- 72 -

USSR

UDC: 621.391.2

PERSHIN, V. T. et al, Izvestiya Akademii Nauk BSSR-Seriya fiziko-
tekhnicheskikh nauk, No 1, 1972, pp 122-124

results. The latter also showed that the frequency shift unavoidably accompanied the frequency modulation, and was caused by the finite rise time of the magnetic field pulse. The authors are associated with the Minsk Radio Engineering Institute.

2/2

USSR

UDC 621.374.5

PERSHIN, V.T., CHIRKIN, N.M.

"Magnetostatic Delay Line"

Kiev, Izvestiya Vuzov SSSR--Radioelektronika, Vol XIV, No 10, 1971, pp 1145-1149

Abstract: The conditions are determined for use of a magnetostatic delay line for compression of microwave signals with linear intrapulse frequency modulation. The delaying medium is a cylindrical bar of a single crystal of yttrium iron garnet axially magnetized to saturation. The theoretical conclusions are verified experimentally. These indicate the possibility of using the relations obtained in engineering practice. Received by editors 6 July 70. 5 ref. 3 fig.

1/1

- 116 -

USSR

UDC 616.936.3-036.87

PERSHIN, Ye. Ya., and YEMYASHEVA, L. I., Uzbek Scientific Research Institute of Experimental Medical Parasitology and Helminthology and Samarkand Oblast Sanitary Epidemiological Station

"Late Recurrences of Quartan Malaria"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyy Bolezni, Vol 39, No 6, 1970, pp 738-739

Translation: Quartan malaria has never been very prevalent in Samarkand Oblast, Uzbek SSR. The incidence of this form of malaria did not exceed 0.6% in 1943-1944. Most of the cases were recorded in the Narpayskiy group of rayons. Only sporadic cases have been recorded in the oblast since 1953, and during the period of virtual eradication of the disease (since 1960) only three cases each were detected in 1960 and 1962. After a 5-year break two cases were recorded in 1968. Both patients became sick in Narpayskiy rayon. Here are the case histories.

Patient Yu., 30 years of age, living in the village of Altykush (Uzbekistan kolkhoz), was hospitalized on 18 April 1968 in the department of contagious

1/5

USSR

PERSHIN, Ye. Ya., and YEMYASHEVA, L. I., Meditsinskaya Parazitologiya i Parazitarnyy Bolezni, Vol 39, No 6, 1970, pp 738-739

disease (headed by Farmanova) of the rayon hospital with a diagnosis of epidemic cerebrospinal meningitis. The diagnosis was confirmed after a spinal tap and the symptoms were characteristic of the disease.

Upon admission, the patient's temperature was 39°C and remained elevated for several days. After treatment with antibiotics and sulfanilamides, the temperature returned to normal. The temperature again rose on the following days: to 37.8°C on 26 April, to 37.5°C on 5 May, to 37.2°C on 11 May, to 37.8°C on 14 May. Examination of a drop of blood taken on 14 May revealed schizonts of the agent of quartan malaria (confirmed by Z. S. Shishlyayeva-Matova at the Uzbek Scientific Research Institute of Medical Parasitology). The patient was treated with acrichine plus plasmodid and then with quincide. She was discharged on 3 June in good condition.

The patient said she had not been sick during the past 10 to 15 years or received any blood transfusions, nor did she travel out of the area during this time. According to the records of the district feldsher, she did not

- 43 -

USSR

PERSHIN, Ye. Ya., and YEMYASHEVA, L. I., Meditsinskaya Parazitologiya i Parazitarnyy Bolezni, Vol 39, No 6, 1970, pp 738-739

receive outpatient treatment during the same period of time. Relatives said that 15 years ago everyone in the village, including patient Yu., developed febrile diseases.

Examination of the inhabitants of the village (210 persons) and blood taken from 20 to 22 May 1968 failed to reveal any other parasite carriers. No imaginal or larval stages of the mosquito vector were found in the houses or in bodies of water within a radius of 3 km around the village.

Patient B., 54 years of age, living in the village of Kara-Tepe (Sverdlov kolkhoz), came to the rayon hospital with complaints of elevated temperature, chills, and headache. She thought that she had been sick since early April 1968, when she was hospitalized with complaints of head cold, elevated temperature, and headache (diagnosis: acute inflammation of the upper respiratory tract). Blood was examined twice for malaria but no parasites were found. Thereafter she felt febrile twice but did not seek medical care.

3/5

USSR

PERSHIN, Ye. Ya., and YEMYASHEVA, L. I., *Meditsinskaya Parazitologiya i Parazitarnyy Bolezni*, Vol 39, No 6, 1970, pp 738-739

Examination of the liver showed it to be enlarged by 4.5 cm, with the spleen extending to the lesser pelvis, an indication of the long duration of the process. Blood was analyzed for malaria on 28 September and various stages of the causative agent of quartan malaria were found (schizonts, merozoites). The parasitological diagnosis was confirmed at the Uzbek Scientific Research Institute of Experimental Medical Parasitology and Helminthology.

The patient said she had not had any febrile diseases in recent years (the district hospital had no record of her having been there during the previous 3 years). She did not remember ever having had malaria or receiving blood transfusions. In 1968 she traveled to the settlement of Khatyrchi, but this locality has not been a focus of malaria for the past 10 years. Examination of 108 persons from the village of Kara-Tepe and their blood on 1 December 1968 failed to reveal any other person suffering from malaria or acting as a parasite carrier. *A. pulcherrimus* larvae were caught in June 1968 in bodies of water in and around the locality, however no imaginal stages were found in the dwellings throughout the season.

4/5

USSR

PERSHIN, Ye. Ya., and YEMYASHEVA, L. I., Meditsinskaya Parazitologiya i Parazitarnyy Bolezni, Vol 39, No 6, 1970, pp 738-379

It is reasonable to assume that both patients experienced late recurrences of quartan fever that was provoked by acute infection - by epidemic cerebrospinal meningitis in the first case and by an acute inflammation of the upper respiratory tract in the second. Our observations should alert clinicians and especially medical workers in regions where quartan malaria was once prevalent.

5/5

USSR

UDC 621.383.51:535.215.6

ANSEON, A.V., KARPOVICH, I.A., PERSHIN, YU.M.

"Effect Of Internal Shunting Resistance On The Characteristics Of Film Photo-detectors With A CdS--Cu₂S Heterojunction"

Elektron. tekhnika. Nauchno-tekhn.sb. Elektronoluch. i fotoslekt. pribory
(Electronic Technology. Scientific-Technical Collection. Electron Beam And Photoelectric Devices), 1970, Issue 2(16), pp 32-35 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4B329)

Translation: It is shown that the unusually small response of film photo-detectors with a CdS--Cu₂S heterojunction in an open circuit regime at low illumination ($E < 100$ lux) is connected with the presence of shunting transition resistance. The dependences are obtained of the shunt resistance on the temperature and illumination, from which it follows that the shunt consists of two series connected resistances, one of which has metallic characteristics and the other semiconductor. As a result of consideration of the construction of photodetectors, a conclusion is given on the nature of the constituents of the shunt. 3 ill. 2 ref. Author's abstract.

1/1

Luminescence

USSR

UDC 541.138.2:546

GARDIN, YU. YE., KULABUKHOV, V. M., ODYNETS, L. L., PERSHINA, G. A., Petrozavodsk State University Imeni Q. V. Kuusinen

"Mechanism of Galvanoluminescence During Anodic Polarization of Aluminum Oxide"

Moscow, Elektrokimiya, Vol VII, No 8, 1971, pp 1184-1185

Abstract: A study was made of the spectral composition of the galvanoluminescence during anodic polarization of systems made up of aluminum, aluminum oxide and an electrolyte. The oxide layer was obtained by anodic oxidation of aluminum (99.99% pure) in two different electrolytes: a) an aqueous solution of boric acid (30 g/liter) with borax (0.05 g/liter) and b) an aqueous solution of oxalic acid (30 g/liter). The galvanoluminescence spectra are plotted for the two given cases. In two series of experiments the structure of the oxide layers remained invariant; however, the galvanoluminescence spectra corresponded to the electrolyte in which the measurement was taken. The results obtained agree with the previously stated proposition [S. P. Maminova, Elektrokimiya, No 1, 365, 1965] that in systems made up of a metal (semiconductor) oxide and electrolyte galvanoluminescence

1/2

USSR

GARDIN, YU. YE., et al, Elektrokhimiya, Vol VII, No 8, 1971, pp 1184-1185
constitutes electrochemical luminescence and is connected with electrochemical reactions at the oxide/electrolyte interface.

2/2

- 26 -

USSR

UDC: 621.791.3

POZDEYEVA, N. V., CHIBIREVA, V. A., METELKIN, I. I., KOVALEVSKIY, R. Ye.,
PERSHINA, L. K., Moscow

"Soldering of Metallized High-Alumina Ceramics with Metals by Means of Copper-Germanium Solder"

Moscow, Fizika i Khimiya Obrabotki Materialov [The Physics and Chemistry of Materials Processing], No 6, Nov-Dec 73, pp 104-110.

Abstract: Data are presented from a study of the interaction of copper-germanium solder containing from 5 to 10 wt, % germanium with the molybdenum-manganese metallization coating on a high-alumina ceramic, type 22KhS, during the process of soldering with various structural metal alloys. In relationship to the metallization coating, the most active element in combination with copper-germanium solder is nickel, which facilitates rupture of the metallization layer, thus reducing the quality of joints produced. Recommendations are given for the selection of a protective coating for the metallization layer as a function of the structural metal used. If the ceramic is to be soldered to alloys containing nickel, the metallization surface should be protected with a galvanic layer of copper.

1/1

- 80 -

USSR

UDC 621.385.032.5:666.3.037.5

ZHMUD', YE.S., SHMELEV, A.YE., PERSHINA, L.K., BONAMI, G.N., KUDOYAROV, M.V.

"Microcentgen Spectral Investigation Of Ti-Ceramic A-995 And Ti-Ag-Ceramic A-995 Seals"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 11, pp 117-123 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A104)

Translation: Distribution of the elements in experimental metalceramic seals was investigated with the aid of a Type MAR-1 microanalyzer and a microanalyzer of the Samos firm. For the metal part of the seals Ti-Ceramic A-995, it is established that the maximum concentration of aluminum is observed near the ceramic, and the titanium and oxygen in the depth of the metal. In the seals Ti-Ag-Ceramic A-995, a concentration of almost all the titanium close to the ceramic is detected, and the silver is in the central part of the metal, while in the initial state the silver is found between the ceramic and titanium. The results obtained confirm the accuracy of the conclusions made during x-ray structural investigation of the seals. Summary.

1/1

- 69 -

USSR

UDC 669.1.017:621.771.8:669.15'24'26'-194

GOLOVANENKO, S. A., MEANDROV, L. V., PERSHINA, N. F., and USTIMENKO, V. A.

"Structure of Two-Layer Corrosion-Resistant Steel"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works],
No 77, Metallurgiya Press, 1970, pp 172-177

Translation: The influence of technological factors on the structure and properties of large bimetallic sheets with a clad layer of chrome-nickel and chrome-nickel-molybdenum steels was studied.

It was established that the technological specifics related to the production of very thick two-layer corrosion-resistant sheets influence the changes in structure and properties.

Methods are recommended for reducing the required corrosion properties of the bimetal. 5 figures; 1 table.

USSR

UDC 621.771.8:669.14.018.8:621.014.5

YAKSHINA, O. K., PERSHINA, N. F., and PAVLOV, YU. M.

"Influence of Cyclical Heating on Strength of Adhesion of Bimetal Layers"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works],
No 77, Metallurgiya Press, 1970, pp 170-172

Translation: The capacity of bimetals with different coefficients of thermal expansion of layers to operate under cyclical heating conditions was studied. The bimetal specimens included: St3+OKh13; St3+OKh17T; St3+Kh25T; St3+Kh18N10T, and St3+Kh23N28M3D3T, tested by periodic heating to 500 and 400°C with subsequent cooling to room temperature.

The results of the tests show the possibility of using these bimetals for long service with cyclical temperature change. 2 figures; 2 tables.

1/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--PHYSICAL PROPERTIES OF CALCIUM OXIDE TITANIUM DIOXIDE SILICON
DIOXIDE, ALUMINUM OXIDE, MAGNESIUM OXIDE STAGS CONTAINING 15PERCENT
AUTHOR--(04)-ZHILO, N.L., GRUZDEV, YU.A., GOROKH, A.V., PERSHINA, R.F.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (11), 65-9

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CALCIUM OXIDE, ALUMINUM OXIDE, MAGNESIUM OXIDE, SILICON
DIOXIDE, TITANIUM DIOXIDE, SLAG, FLUID VISCOSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1812

STEP NO--UR/0370/70/000/001/0065/0069

CIRC ACCESSION NO--AP0118776

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118776

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPN. VISCOSITY AND COMPN. FUSIBILITY DIAGRAMS FOR EXPTL. DATA AT 1400 AND 1500DEGREES WERE CONSTRUCTED FOR THIS SYSTEM. AN INCREASE IN THE CAO:SIO SUB2 RATIO IN THE TI SLAGS DECREASES THE VISCOSITY; THIS EFFECT IS GREATER AT LOW TIO SUB2 CONCN. INCREASING THE TIO SUB2 CONCN. IN THE SLAGS TO A CERTAIN LIMIT, DEPENDING ON THE CAO:SIO SUB2 RATIO, REDUCES THE VISCOSITY OF THE MELTS. ABOVE THIS LIMIT THE SLAG VISCOSITY RISES DUE TO CRYSTN. PROCESSES. THE GREATEST REDN. IN VISCOSITY WITH INCREASE IN TIO SUB2 CONCN. OCCURS IN THE SLAGS WITH DECREASED CAO:SIO SUB2 RATIOS.

UNCLASSIFIED

USSR

UDC 621.52:541.183:66.097.4

DOMNITSKAYA, M.A., PERSHINA, YE.I., RUBASHKIN, B.L.

"Activation Of Palladium Membranes By Titanium Hydride With The Object Of Reducing The Temperature Of The Process Of Diffusion Cleaning Of Hydrogen"

V sb. Novoye v tekhn. poluprovodn. proiz-va (New Semiconductor Production Technology--Collection Of Works), Voronezh, Voronezh University, 1971, pp 89-93 (from RZh:Elektronika i yeye primeneniye, No 4, April 1972, Abstract No 4A48)

Translation: It is established that at a temperature of 60° C permeability of an activated membrane to hydrogen is five times lower than that of a nonactivated membrane at a temperature of 300° C. At a temperature of 17--70° C, a dual coating of a membrane of commercial palladium by titanium hydride, obtained by free deposition of a hydride layer with subsequent brazing and repeated hydrogenation, assures permeability to hydrogen commensurate with the permeability of commercial palladium at a temperature of 250--300° C. A decrease of the permeability to hydrogen during operation of the membrane for approximately three months does not exceed 22--25 percent from the initial value. 5 ref.A.F.

1/1

USSR

UDC 621:382.002

RUBASHKIN, B.L., PERSHINA, YE.I., DOMNITSKAYA, M.A., ZAVALISHIN, A.A.

"Activation Of Palladium Filters For Cleaning Of Hydrogen"

Elektron. tekhnika. Nauch.-tekhn.sb. Tekhnol. i organiz. proiz-va (Electronics Technology. Scientific-Technical Collection. Technology And Organization Of Production), 1971, No 5(45), pp 81-85 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A123)

Translation: A procedure is developed for deposition of titanium hydride on palladium plates, with the object of assuring their hydrogen permeability at reduced temperatures. It is established that a positive effect gives the only method of deposition which assures a porous covering, with the thickness of the covering not affecting the performance of the membrane. 8 ref. A.F.

1/1

- 71 -

USSR

UDC 615.371:576.851.49].074

SINILOVA, N. G., PERSHINA, Z. G., DUPLISHCHEVA, A. P., and IVANOV, K. K.,
Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of
Medical Sciences USSR

"Biochemical Composition of Preparations From Original Sh. flexneri 550
Cultures and Mutants With Increased Radioresistance"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, 1971,
pp 102-107

Abstract: Analysis of the basic chemical composition of preparations from
Sh. flexneri 550 cultures and mutants obtained by repeated gamma irradiation
failed to disclose any differences between them with respect to nitrogen,
phosphorus, and nucleic acids. However, cells of the mutants contained
smaller amounts of proteins and carbohydrates but more lipids than did cells
of the original culture. The biochemical composition (according to the
above indices) of the antigens isolated from the original cultures and mu-
tants was very similar. All the preparations from the mutants differed
markedly from the original cultures in qualitative and quantitative compo-
sition of carbohydrates.

1/1

Radiobiology

USSR

UDC 576.8.095.14:539.12

TUMANYAN, M. A., and PERSHINA, Z. G., Institute of Epidemiology and Microbiology imeni Gamaleya, USSR Academy of Medical Sciences, Moscow

"The Effects of Ionizing Radiation on Microorganisms and Radiation Sterilization (Survey)"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 5, May 71, pp 75-80

Abstract: In this review, the radiosensitivity of microorganisms is compared with that of animals and plants, a classification of microorganisms is presented according to their increasing resistance to X-rays gamma-, and beta-rays (bacteria, molds, yeasts, spores, viruses, and phages), mutations are described, and the causes of the unequal susceptibility of cells in one culture are discussed. With decreasing size of individual cells, increasing concentration of cells per ml of suspension, poor nutrition, abundant oxygen supply, and temperature above 40°C, the sensitivity of the microorganisms to ionizing irradiation increases. As for the stage of growth, sensitivity is greatest at the beginning of cell division. Due to its bactericidal effect, ionizing radiation is used for sterilization of food products and other objects whenever

1/2

USSR

TUMANYAN, M. A., et al, Zhurnal Microbiologii Epidemiologii i Immunobiologii,
No 5, May 71, pp 75-80

thermal and chemical methods are unsuitable (packaged products, for instance).
The main problems to be resolved in the area of radiation sterilization are:
selection of the most suitable source of rays; determination of effective doses;
investigation of the sterility and harmlessness of irradiated products; and
development of better sterilization methods and equipment for standard and
special production circumstances.

2/2

USSR

UDC 576.851.48.095.14

PERSHINA, Z. G., and SAMOYLENKO, I. I., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR

"Modification of the Properties of E. Coli K-12 (F⁻) (287 uph⁻) Induced by Repeated Irradiation With Gamma Rays"

Moscow, Mikrobiologiya, Vol 40, No 3, May/Jun 71, pp 528-531

Abstract: Repeated gamma irradiation of E. coli K-12 yields strains with increased radioresistance. While the LD-90 of the parent culture is 12.5 krad, it rises to 16.3 krad after 14 exposures and to 60.5 krad after 19 exposures. The mutants also differ from the parent strain in DNA composition (more AT-pairs in the nucleotides) and by their cultural, biochemical, serological, and auxotrophic properties. The modifications are stable and are transmitted to successive generations. Sera obtained for the initial strain and for the mutant strains give cross reactions, indicating that the mutants with increased radioresistance do not come from contaminating bacteria but are the true descendants of the initial E. coli strain.

1/1

USSR

UDC: 576.851.252.095.14.095.15

SAMOYLENKO, I. I., and PERSHINA, Z. G., Physical Chemistry Laboratory, and Radiation Immunology Laboratory, Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

"The Effect of Temperature on the Radioresistance of *Staphylococcus aureus*"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 70, No 12, Dec 70, pp 57-59

Abstract: Two *S. aureus* strains (No. 73 and B-445) and their radioresistant mutants were used to study the effect of temperature on their growth after irradiation and the effect of irradiation combined with heat. A change in the temperature of postradiation growth (19 and 45°C) did not significantly alter the survival rate of the original cultures as compared with controls (grown at 37°C). In the radioresistant mutants, on the other hand, the survival rate at 19 and 45°C was lower than at 37°C. The bactericidal effect of ionizing radiation combined with heat was found to depend on the order in which the agents were applied. Simultaneous irradiation and heating (50°C for 15 min) was most effective, heat applied after irradiation was less effective, and irradiation at room temperature after heating was least effective.

1/1

- 35 -

1/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--MODIFICATION OF PROPERTIES OF STAPHYLOCOCCI AFTER REPEATED GAMMA
IRRADIATION -U-
AUTHOR--(04)-TUMANYAN, M.A., PERSHINA, Z.G., PAVLOVA, I.B., SAMOYLENKO,
I.I.
COUNTRY OF INFO--USSR
SOURCE--MIKROBIOLOGIYA 1970, VOL 39, NR 1, PP 12-117
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--STAPHYLOCOCCUS AUREUS, GAMMA RADIATION, DNA, RADIATION
BIOLOGIC EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/1442 STEP NO--UR/0220/70/039/001/0112/0117
CIRC ACCESSION NO--AP0109502
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109502

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REPEATED GAMMA IRRADIATION WITH SUBBACTERICIDAL DOSES OF STAPHYLOCOCCUS AUREUS RESULTED IN MODIFICATION OF ITS CULTURAL, BIOCHEMICAL AND OTHER PROPERTIES. ULTRA FINE CELL STRUCTURE CHANGED AND CELL RADIORESISTANCE INCREASED. A FALL IN ENZYME ACTIVITY, AN IMPAIRMENT OF HEMOLYTIC PROPERTIES AND A LOSS OF VIRULENCE CAUSED SAPROPHYTIZATION OF STAPHYLOCOCCI. A COMPARISON OF ULTRA FINE STRUCTURE IN THE PARENT STAPHYLOCOCCI AND IN THOSE WITH INCREASED RADIORESISTANCE REVEALED ENLARGED (2-2.5 FOLD) CELL DIMENSIONS IN THE IRRADIATED CULTURES, A DISTURBANCE OF CELL DIVISION AND A DISAPPEARANCE OF MEMBRANE STRUCTURES TYPICAL FOR THE PARENT CULTURE. DESPITE THE CONSIDERABLE CHANGES IN STAPHYLOCOCCI WITH INCREASED RADIORESISTANCE, THEIR DNA BASE RATIO WAS IDENTICAL TO THAT OF THE PARENT BACTERIA.

UNCLASSIFIED

USSR

UDC 576.851.25.2.095.11

TUMANYAN, M. A., PERSHINA, Z. G., PAVLOVA, I. B., and SAMOYLENKO, I. I., Institute of Epidemiology and Microbiology imeni N. F. Gama-leya, Academy of Medical Sciences USSR

"Modification of Properties of Staphylococci After Repeated Gamma-Irradiation"

Moscow, Mikrobiologiya, Vol 39, No 1, Jan/Feb 70, pp 112-117

Abstract: A study was made of the possibility of obtaining Staphylococci with increased radioresistance after repeated gamma-irradiation. Staphylococcus aureus strains 73 and V-045 were used. Experiments revealed that repeated gamma-irradiation of Staphylococcus aureus with sub-bactericidal doses resulted in modification of cultural, biochemical and other properties. Ultrafine cell structure changed and cell radioresistance increased. A drop in enzyme activity, an impairment of hemolytic properties, and a loss of virulence caused saprophytization of the Staphylococci. A comparison of ultrafine structure in the parent Staphylococci and strains with increased radioresistance revealed enlarged (2-2.5 fold) cell dimensions in the irradiated cultures, disruption of cell division, and the dis-
1/2

USSR

TUMANYAN, M. A., et al., Moscow, Mikrobiologiya, Vol 39, No 1,
Jan/Feb 70, pp 112-117

appearance of membrane structures typical of the parent culture.
Despite the considerable changes in staphylococci with increased
radioresistance, their DNA base ratio was identical to that of the
initial strain.

2/2

USSR

UDC 535.343.32:539.21

PERSHITS, YA. N., VASIL'YEV, N. N., Pskov State Pedagogical
Institute imeni S. M. Kirov

"Optical Absorption in Crystals and Solutions of Potassium Halides
Doped With Lead"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 12, 1971,
pp 71-76

Abstract: The absorption of aqueous-haloid solutions of $PbCl_2$, $PbBr_2$, PbI_2 , and doped crystals was studied in the region of the long-wave absorption band in order to explain the relationship between absorption in mixed solutions and crystals. A spectral photometry technique was developed to determine the lead concentration, and the relationship between the optical absorption of alkali-halide crystals doped with $PbCl_2$ and the corresponding aqueous solutions was studied. The absorption spectra were measured on the SF-4A spectrophotometer. It is shown that differences in the position of the absorption maxima of $(MHal_n)^{m-1}$ complexes are caused by the effect of water molecules and not by the structure of the complexes. It was further established that the

1/2

- 128 -

USSR

PERSHITS, YA. N. et al, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 12, 1971, pp 71-76

long-wave absorption band in a crystal (273 nm in the case of $KCl + PbCl_2$) is caused by the interaction of lead ions with anions independent of the nature of the distribution of the impurity in the crystal. The data show that this absorption band is caused not only by ions localized in the regular intersections of the crystal lattice responsible for impurity conductivity but also by all lead ions interacting with the anions. It is concluded that the structure of the negative complexes does not itself have a considerable effect on the position of the maxima of the absorption band. The differences in the type of localization of bivalent lead ions in the crystal are said to have a considerable effect on conductivity but may not appear in the position of the maxima of the absorption band.

2/2

USSR

PERSHITS, YA. N., and ANDRUSIN, V. A., Pskov State Pedagogical
Institute imeni S. M. Kirov

"Change in Conductivity of Alkali Halide Crystals After X-Irradi-
ation and Additive Coloring"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 1, Jan 71, pp 280-281

Abstract: For purposes of elucidating the mechanism of radiation-
induced changes in conductivity, the authors studied KCl crystals
with Ca^{2+} , Sr^{2+} , Ba^{2+} , Ni^{2+} , Zn^{2+} , Cd^{2+} , Pb^{2+} ion impurities sub-
jected to electrochemical coloring and discoloration (510-630° C,
E = 100 v/cm), x-irradiation (URS-55 at V = 55 kv, I = 12 ma,
dose $1.3 \cdot 10^4$ r), and discoloration and combined action: i. e., X-
raying after electrochemical coloring and discoloration. In KCl
crystals with alkali-earth metal and nickel impurities neither X-
irradiation nor additive coloring causes reduced ionic conduc-

1/2

- 35 -

USSR

PERSHITS, YA. N., and ANDRUSIN, V. A., Fizika Tverdogo Tela, Vol 13, No 1, Jan 71, pp 280-281

tivity. Additive coloring or X-raying of KCl crystals with Zn^{2+} , Cd^{2+} , Pb^{2+} impurities reduces ionic conductivity. Annealing restores the conductivity possessed by the crystal before X-raying i. e., the atomic centers appearing in electrochemical coloring possess greater thermal stability than those appearing in X-irradiation. The variation with temperature of the conductivity of the X-rayed crystals is affected by two processes: viz., decreased vacancy concentration up to a temperature of $130^{\circ}C$, the reverse process at higher temperatures. The article offers an interpretation of the results.

2/2

1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EFFECT OF DIVALENT IMPURITIES ON THE CONCENTRATION OF CATION
VACANCIES IN ALKALI HALIDE CRYSTALS -U-
AUTHOR--(02)-PERSHITS, YA.N., VEYSMAN, V.I.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1285-8
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, CHEMISTRY
TOPIC TAGS--SODIUM CHLORIDE, CADMIUM CHLORIDE, POTASSIUM CHLORIDE,
POTASSIUM BROMIDE, OPTIC PROPERTY, CRYSTAL IMPURITY, ADSORPTION,
ELECTROCHEMICAL PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/0152 STEP NO--UR/0181/70/012/004/1285/1288
CIRC ACCESSION NO--AP0129408
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129408

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IONIC COND. OF THE CRYSTALS OF NaCl PLUS COCL SUB2 AND KBr PLUS CDBR SUB2 WAS INVESTIGATED IN RELATION TO THE VARIATION OF OPTICAL ABSORPTION CAUSED BY ADDITIVE OR ELECTROCHEM. COLORING OF THESE CRYSTALS. THE CRYSTALS WERE GROWN FROM THE MELT. A DECREASE IN COND. OF THESE CRYSTALS WAS ACCOMPANIED BY THE APPEARANCE OF CHARACTERISTIC ABSORPTION BANDS. POSITIONS OF THE MAX. DEPEND ON THE CONDITIONS OF TREATMENT OF THE CRYSTALS. FOR NaCl AFTER COLORING AND BLEACHING, A COMPLEX BAND WAS OBSD. WITH 2 MAX., AT 280 AND 295 NM, CLOSE IN INTENSITY. IN KBr PLUS CD PRIME2 POSITIVE CRYSTALS COND. CEASES TO INCREASE EVEN AT VERY LOW CONCNS. (10 PRIME NEGATIVE3 MOLE PERCENT). THE ABSORPTION COEFF. INCREASES LINEARLY WITH CONC. AT VERY LOW CONCNS. AND BECOMES CONST. AT 10 PRIME NEGATIVE3 MOLE PERCENT. THIS INDICATES THAT THE ABSORPTION IS NOT BY THE IMPURITY BUT ONLY BY THE PART THAT PARTICIPATES IN THE FORMATION OF IMPURITY COND. FACILITY: PSKOV. GOS. PEDAGOG. INST. IM. KIROVA, PSKOV, USSR.

UNCLASSIFIED

Aluminum and Its Alloys

UDC 621.3:669.71

USSR

VORONTSOVA, L. A., MASLOV, V. V., and PESHKOV, I. B.

"Aluminum and Aluminum Alloys in Electrical Engineering Products"

Alyuminiy i Alyuminiyevyye Splavy v Elektrotekhnicheskikh Izdeliyakh, Moscow, Energiya Press, 1971, 224 pages

Translation of Annotation: This book studies problems of the use of aluminum and aluminum alloys in various electrical engineering products. The physical and mechanical properties of aluminum and aluminum alloys (electrical conductivity, mechanical strength, fatigue, creep, etc.) and specifics of technological processes related to the use of these materials (welding, soldering) are presented.

The book is designed for engineering and technical workers involved in the design, planning, manufacture, operation, and repair of electrical engineering products in which aluminum and its alloys are used as conductors and structural materials.

TABLE OF CONTENTS

1/5

USSR

VORONTSOVA, L. A., et al., Alyuminiy i Alyuminiyevyye Splavy v Elektrotekhnicheskikh Izdeliyakh, Moscow, Energiya Press, 1971, 224 pages

Chapter One. Presence of Aluminum in the Earth's Crust and Basic Methods of Its Extraction	3
Chapter Two. Conducting Aluminum	8
2-1. Basic Characteristics of Conducting Materials	8
2-2. Specific Electrical Resistance of Metals and Factors Influencing It	10
1. Influence of Temperature	11
2. Influence of Deformation	12
3. Influence of Foreign Atoms	13
2-3. Physical and Mechanical Properties of Aluminum	16
1. Influence of Impurities on Specific Resistivity of Aluminum	18
2. Influence of Deformation on Mechanical Properties of Aluminum	20
3. Change in Physical and Mechanical Properties of Aluminum Under the Influence of Temperature	21
4. Creep and Fatigue of Aluminum	24
Chapter Three. Conducting Aluminum Alloys	27

2/5

USSR

VORONTSOVA, L. A., et al., Alyuminiy i Alyuminiyevyye Splavy v Elektrotekhnicheskikh Izdelyakh, Moscow, Energiya Press, 1971, 224 pages

3-1. Influence of Various Alloying Elements on Physical and Mechanical Properties of Conducting Aluminum	27
3-2. Conducting Aluminum Alloys Type AE	29
1. Chemical Composition and Physical-Mechanical Properties	29
2. Influence of the Addition of Iron	36
3. Influence of the Addition of Boron	37
4. Optimal Heat Treatment Modes and Structure of Alloys	38
5. Commercial Technology of Production of Semifinished Goods of Alloys AE-1 and AE-2	43
6. Change in Mechanical Properties and Resistivity of AE-1 and AE-2 as Functions of Temperature	45
7. Fatigue and Creep of AE Alloys	47
3-3. Physical and Mechanical Properties of Aldrey and Kondal Alloys	48
3-4. Physical and Mechanical Properties of the Alloys VUK-30E and VUK-33E, ChSN-424405	50
3-5. Conducting Aluminum Alloys Containing Zirconium	53

3/5

USSR

VORONTSOVA, L. A., et al., *Alyuminiy i Alyuminiyevyye Splavy v Elektrotekhnicheskikh Izdelyakh*, Moscow, Energiya Press, 1971, 224 pages

Chapter Four. Specifics of Technological Processes Involved in the Application of Aluminum and Aluminum Alloys in Electrical Engineering	60
4-1. Welding	60
4-2. Soldering	65
4-3. Methods of Connecting Cables and Conductors With Aluminum Cores	69
1. Methods of Connecting Aluminum Wire	69
2. Connection and Termination of Aluminum Cable Cores	71
Chapter Five. Cast Aluminum Alloys Used in Electrical Engineering With High Electrical Resistance	80
Chapter Six. The Manufacture of Aluminum Cable and Wire	87
Chapter Seven. Winding Wires With Enamel, Fiber, and Oxide Insulation	95
Chapter Eight. Power Cables	114

4/75